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PRE-APPEAL BRIEF REQUEST FOR REVIEW	Docket Number (Optional) 341148018US	
	Application Number 10/749,478-Conf. #3939	Filed December 31, 2003
	First Named Inventor Wright et al.	
	Art Unit 3737	Examiner A. S. Jasani

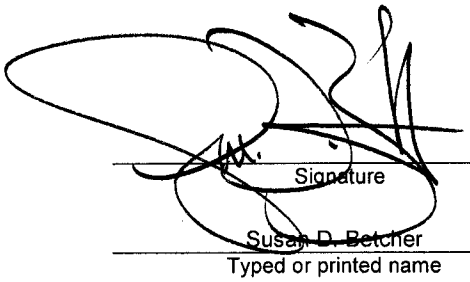
Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- [ ] applicant /inventor.
- [ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- [x] attorney or agent of record. Registration number 43,498
- [ ] attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34.



Signature

Susan D. Belcher
Typed or printed name

(206) 359-8000
Telephone number

January 18, 2008
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

[x] *Total of 1 forms are submitted.

Docket No.: 341148018US

(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Wright et al.

Application No.: 10/749,478 | Confirmation No.: 3939

Filed: December 31, 2003 | Art Unit: 3737

For: RECEIVER USED IN MARKER LOCALIZATION SENSING SYSTEM | Examiner: A. S. Jasani

ARGUMENTS FOR PRE-APPEAL BRIEF REQUEST FOR REVIEW

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants submit along with the Notice of Appeal the following arguments for consideration by the conference panel. Applicants respectfully submit that the arguments point out clear errors in the rejection of the claims. Applicants respectfully request reconsideration of this application in view of these arguments.

ARGUMENTS

Applicants' amendment of April 30, 2007, includes a listing of the claims on pages 2-5. In response to the applicants' previous amendments, the Examiner has rejected claims 1-4, 6-7, 9-10 and 12-16 under 35 U.S.C. § 102(b) as being anticipated by Hsiao (MIT M.S. Thesis, 2001); and claims 5, 8 and 11 under 35 U.S.C. § 103(a) over Hsiao.

Claim 1 is directed to a receiver that receives a plurality of inputs indicative of a sensed magnetic flux from a marker associated with a patient. The marker is excited by an excitation source. The receiver includes a correlation processor for analyzing the plurality of inputs in a coherent manner. As disclosed in the specification, the correlation processor further acts on a plurality of inputs to localize a marker in three-dimensional space. As further disclosed in the specification, a coherent receiver design is required to retain the relative polarity of each channel and provides a signal-to-noise performance improvement over other receivers. (Specification, pg. 14, ¶ 3).

Independent claims 6, 9 and 16 are directed to system for locating a marker associated with a patient including an excitation source for emitting an exciting waveform and causing the marker to resonate, a sensing array or sensing coil for sensing the resonating marker and a receiver for analyzing the input in a coherent manner. Independent claims 14 and 15 are directed to methods for treating a patient that has a wireless marker associated to the patient including sensing the wireless marker, determining the actual location of target using the sensed position, and controlling the radiation beam and/or movement of the patient while sensing the wireless marker. Claim 14 also includes irradiating the patient with a radiation beam.

Hsiao does not support a Section 102 rejection of the claims because Hsiao fails to disclose several features of these claims. For example, Hsiao does not disclose a receiver that receives more than one input or is able to analyze a plurality of inputs. In order to localize a marker in three-dimensions, multiple coils must be used as is taught, disclosed and claimed in the present application. Further, Hsiao does not teach or disclose localization of a tag or marker. Rather, Hsiao teaches and discloses a system and method of detecting a tag by measuring the "proximity" or "proximity and inclination" of a tag relative to the coil (Hsiao, pg 19, ¶2; pg 20 ¶2). As disclosed by Hsiao, multiple locations and inclinations of a detected tag result in the same signal with no means to disambiguate the signals due to the single sensor coil configuration taught and disclosed by Hsiao. Thus, Hsiao teaches and discloses a detection system that provides a response signal if the tag is in the proximity of the sensor in a binary on/off or proximate/not proximate manner. Hsiao however, does not and cannot analyze a plurality of inputs for providing localization data of a marker.

Furthermore, applicants contend that the Examiner has erroneously combined two unique and noncombinable magnetically-resonant passive tags disclosed and taught by Hsiao to establish his Section 102 rejection; namely, a ringdown tag reader and a swept-frequency tag reader. The Hsiao thesis admits to exploring "two tag reading principles, pulsed ringdown and continuous swept frequency," which have discreet advantages and unique operating qualities. (Hsiao, page 12, 23) Hsiao concludes that "although the ringdown reader has an advantageous detect range ... we needed to examine other approaches" to create the desired tangible interface application. (Hsiao, page 23) Hsiao further differentiates the ringdown tag from the swept-frequency tag by stating "[b]ecause our prototype ringdown tag reader proved difficult to adapt to larger number of tags, we began examining another approach to reading tags," thus Hsiao teaches and recognizes that the two disclosed tags are unique and noncombinable solutions. (Hsiao, page 25) The Examiner, however, ignores the teaching of Hsiao that the tags utilize unique principles and erroneously combined the two distinct and very differently operating tag readers to support his Section 102 rejection. The Section 102 rejection of claims 1-4, 6-7, 9-10 and 12-16 is therefore improper.

When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. (37 C.F.R. § 1.104(c)(2).) The Examiner fails to designate and rely on one reader tag disclosure.

For example, the Examiner relies on Section 3 of the Hsiao reference, which teaches and discloses swept-frequency tags and also various pages of Section 2, which teaches and discloses ringdown tags. (Final Office Action, page 2, 3) It is unclear to the Applicants which of these inventions the Examiner is relying on for the Section 102 rejection, or if in fact the Examiner has simply failed to recognize that Hsiao discloses multiple inventions. At a minimum, it appears that the Examiner has incorrectly combined these two inventions in his rejection. Irregardless, the rejection is improper because neither of the tag readers as disclosed by Hsiao anticipate the presently claimed features. Furthermore, assuming *arguendo*, the Examiner meant to combine the two different tag readers disclosed in Hsiao, the combination of the ringdown tag reader and the swept-frequency tag reader could not establish a *prima facie* case under a Section 103 rejection of claims 1-4, 6-7, 9-10 and 12-16 because as taught by Hsiao, the tags are not combinable and would result in an invention that would be inoperable for its intended purpose.

With respect to the ringdown tag reader, in Chapter 2 of the thesis Hsiao discloses a ringdown tag reader for detecting the presence of a tag having a pre-determined frequency (e.g., magnetostrictor tags and LC tags both of which are most notably used in shoplifting detection). Hsiao's ringdown reader design includes a single coil through which "pings" are transmitted at the pre-determined frequency. (Hsiao, Figure 2) After the ping is transmitted, the tag begins to resonate. Once the tag rings up, the transmission source is turned off and, following a 100-350 microsecond pause, the reader "listens" for a small but detectable response. (Hsiao, pg. 14, ¶ 1). The ringdown system includes a single detector coil that will 1) "listen" for a tag's ringdown response only if its frequency is identical to the ping frequency, and 2) determines total power of the response in order to infer proximity of the tag to the detector coil. (Hsiao, pg. 19, ¶ 1; emphasis added). Following the reception of the ringdown signal, the signal must be amplified and "sent to a quadrature demodulator in order to bring the received signal directly to baseband." (Hsiao, pg. 19, ¶ 2). The ringdown system is designed to detect only one tag at a time, but may detect a few tags sequentially only if the tags have sufficiently different resonant frequencies. (Hsiao, pg. 15, ¶ 3).

Hsiao teaches that because the ringdown tag reader proved difficult to adapt to larger numbers of tags, he developed a swept-frequency tag reader that "*uses a different set of operation principles,* places other constraints on the system architecture, and as a result has numerous advantages and disadvantages over the ringdown reader." (Hsiao, pg. 25, ¶ 1, emphasis added). The swept-frequency reader measures the energy drawn from the field (which causes a slight and brief change in the inductance of the coil) which is manifested as "a dip in the voltage or current." (*Id*). Accordingly, no *sensor* coil is taught or disclosed in the swept-frequency system. (Hsiao, pg. 26, ¶ 1).

Thus, neither the swept-frequency tag reader nor the ringdown tag reader anticipates the claimed invention. For example, the swept-frequency tag reader fails to teach or disclose a receiver for analyzing a plurality of inputs in a coherent manner. As disclosed by Hsiao in Chapter 3, the swept-frequency reader system does not include a single reader board, receiver, or correlation processor for analyzing a plurality of inputs in a coherent manner.

Instead, there are a plurality of separate reader boards for each transmission coil (there are no sensor coils of any kind in this system) that do not correlate or analyze a plurality of inputs. Furthermore, the ringdown tag reader of Hsiao fails to teach or disclose detecting or analyzing a plurality of inputs as claimed.

Hsiao further discloses two additional embodiments of swept-frequency tag readers: a two-coil configuration wherein the coils face each other, and a six-coil configuration consisting of three coil pairs. (Hsiao, pg. 62, ¶ 4). Hsiao teaches that the six-coil configuration can be used for 3-D tracking of tags positioned within the boundaries of the cube, but that the coil pairs can not be run simultaneously, which leads to a slowing of the read time (by a factor of three). (Hsiao, pg. 58, ¶ 1; pg. 64, ¶ 1). As such, each transmitting coil pair is separately measured for changes in voltage or currency during their respective frequency sweeps. The coils are independently connected to six different tag reader boards that perform independent analog processing and send responses through a multiplexer to either a master board or a partner master board before sending responses to the computer. (Hsiao, pg. 64-65).

In summary, inorder to support a Section 102 rejection, the Examiner has erroneously and improperly combined the operating principals of the ringdown tag reader of Hsiao with the 3-D tracking capabilities of Hsiao's swept-frequency tag reader. Specifically, the Examiner relies on Hsiao's comments that his swept-frequency tag reader with the six-coil cube configuration can be scaled to accommodate a person and that the "application of a tracking system such as an improved six-coil reader would enable the beam of radiation to be more tightly focused on the exact tumor site" and also relies on the swept-frequency tag reader to teach position and orientation (Final Office Action, page 2) Additionally, the Examiner relies on Hsiao's ringdown tag reader for claim elements such as the quadrature processor, excitation and listening intervals, and time-averaging the inputs. (Final Office Action, page 3) Hsiao, however, discloses that his ringdown tag reader system only can infer proximity of the tag to the detect coil and is not capable of tracking position or orientation.

Indeed, Hsiao teaches against the scaling up of the ringdown tag reader by acknowledging that "even using an optimized reader with a decreased detect time, the intrinsic timing considerations inherent to this technique would make it impossible for it to update at this rate." (Hsiao, pg. 23, ¶ 1). Hsiao's ringdown detection system, which is only disclosed as being useful for *simple* musical and graphical applications, has a reader that receives only one input and has only one sense coil ("detection coil") for detecting the presence of a single resonating tag during one listening interval. (Hsiao, chapter 2; Figures 4 and 5). The ringdown tag reader disclosed by Hsiao fails to teach the ability to analyze a plurality of inputs in a coherent manner using a correlation processor as claimed. Accordingly, the Hsiao ringdown tag reader fails to support a Section 102 rejection. Moreover, in Hsiao's own work, he discontinues improvements on the ringdown reader system because "each tag's frequency has to be preprogrammed into the hardware of this system...lead[ing] to more difficulties because of the possibility of frequency drift and inaccuracies, both in the tags and in the reader." (Hsiao, pg. 23, ¶ 2). Hsiao does not suggest

scaling up or using any aspect of this reader system for use with patients in medical settings, and, in his disclosure only teaches away from its use for such applications.

Hsiao is an insufficient reference for rejecting the teachings of the claimed invention for an additional reason. An invention cannot be obvious or anticipated when a reference "is but an invitation to scientists to explore a new technology that seems a promising field of experimentation." (*Ex parte* Obukowicz, 27 USPQ2d 1063, 1992). Hsiao only gives general guidance in regard to using the swept-frequency tag reader for real-time tracking of tumors, does not teach or suggest other uses of the tag reader with or without additional techniques, and simply invites scientists to explore and refine" the principals of the six-coil reader." (Hsiao, pg. 79, ¶ 3). Accordingly, the Examiner is incorrect and the cited reference is insufficient to support the rejection of claim 1.

While the Examiner may have intended to combine the elements of ringdown tag reader operational principals with the 3-D tracking system of the swept-frequency tag reader to arrive at the claimed features, he would none-the-less been incorrect in doing so. The two tag readers, as disclosed by Hsiao operate on very different principals and a combined product would have been inoperable. (Hsiao, pg. 25, ¶ 1). Moreover, because neither the ringdown nor the swept-frequency system disclose or teach a receiver that uses coherent detection to analyze a plurality of inputs, the combination of systems would again be insufficient to reject the claimed features.

Claims 2-4, 7, 10 and 13 depend from allowable independent claims. Therefore, the Section 102 rejections of these dependent claims are also incorrect for the reasons discussed above and for the additional features of these claims.

The Examiner has failed to establish a *prima facie* case for rejecting claims 5, 8 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Hsiao. The combination of the swept-frequency reader tag and the ringdown reader tag would be inoperable for its intended purposes. For the reasons set forth above with respect to the independent claims from which these claims depend, Hsiao does not support a Section 103 rejection of these claims.

Applicants believe the pending application is in condition for allowance and request reconsideration of the application in view of the above comments. If a fee is due, please charge our Deposit Account No. 50-0665, under Order No. 341148018US from which the undersigned is authorized to draw.

Dated: 1.18.08

Respectfully submitted,

By _____
Susan D. Betsher
Registration No.: 43,498
PERKINS COIE LLP
P.O. Box 1247
Seattle, Washington 98111-1247
(206) 359-8000
(206) 359-7198 (Fax)
Attorney for Applicant